

T90 – the gentle codend with many advantages

Preservation of Fish Quality - Netting turned 90°

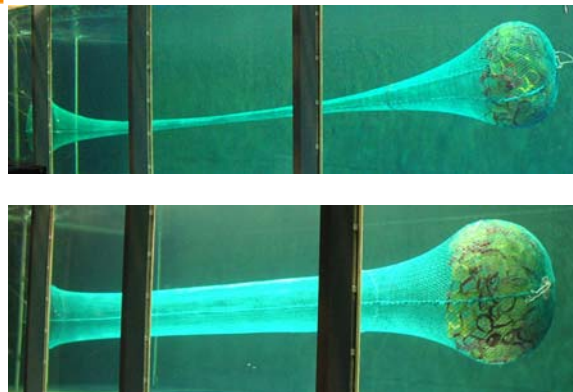
When it is not possible to solve the problems by fishing more, you got to sell the catch at a higher price. Better quality can get higher prices in the market. SINTEF has for some time been developing a new cod-end, which is better in preserving the quality of the fish. The solution is remarkably simple: Turn the netting 90° in the cod-end.

Background

The background for the project was the fact, that fish caught in trawls too often are damaged by the cod-end. Scales and mucous are worn off, and in the filet you can find blood marks from bruises in the skin. Underwater video recordings of trawls in operation reveal the cause: There is much turbulence around the catch in the cod-end and it is waving from side to side. The fish therefore are washed around in the cod-end and rubbed against the netting.

The aim was to develop a cod-end, which had a large cross-section, in order to reduce the flow and hence the turbulence. At the same time the inner surface had to be made of more smooth material. Many different cod-ends were tested in the SINTEF Flume Tank at the North Sea Centre. They were made in a scale 1:2 and filled with a "catch" equal to 450 kg. The cross-section area was measured and the waving action was registered on a video screen with a picture of the net from the front.

The best results were with the cod-end with the netting turned 90°. The cross-section was 12 times larger and the swinging reduced dramatically in relation to the standard two-panel cod-end with two external seams.



Top: Standard codend; bottom: T90 codend

Many advantages

Quite a few tests have been made in full scale at sea during 2003 and 2004 using T90 cod-ends in various fisheries. At this stage there are no quality measurements available. However, the impact on the catch is clear, and there is less shells and debris normally hampering the quality of the target catch.

It is also very interesting, that the T90 codend is reported to catch much more than standard codends. No doubt part of the reason for the positive effect of the catch is that there is an increased water flow from the belly of the trawl to the cod-end. Here it will pass out again through the open meshes all along the entire length of the cod-end. Therefore it can be expected that another bonus of using T90 netting is that the larger flow will pull more – and larger – fish to the cod-end.

The selectivity of the cod-end will inevitably be higher, letting more small fish escape the trawl. But it is worthwhile noticing that the escapees will also have a better quality, for them meaning a better condition and survival rate.

By measuring the breaking strength of the 90°-turned net, it was surprisingly found that it is slightly stronger than when used in the traditional direction, a magnitude of around 10%.



Motion in water of Standard and T90 codends as seen with a front mounted camera

The Project is funded by the Norwegian Fisheries and Aquaculture Research Fund